**“Do You Know Your Neighbors?”** LESSON PLAN

**Subject:** Environmental Science/Life Science **Topic:** Local Fauna

**Grade levels:** Adaptable **Suggested Allotted Time:** 5 hours

**Target Group:** Suitable for regular education or inclusion classes and visual, auditory and tactile learners who have knowledge of the components of ecosystems to include the following: communities, habitats, populations and niches. (Refer to background information)

**PDE Standards:**

**4.1.7.D:**

Explain how **biological diversity** relates to the viability of **ecosystems**

4.1.8.F Know that both direct and indirect observations are used by scientists to study the natural world and universe

M7.B.2.2.1 Interpret and/or apply scales shown on maps, blueprint, models etc.

M8.B.2.2.1: Use, describe and/or develop procedures to determine measures of perimeter, circumference, area, and/or volume.

**9.1.12.A:** Know and use the elements and principles of each art form to create works in the arts and humanities

**Goal:** To engage students in activities that will develop an acknowledgement and appreciation of the diverse role animals play in our communities.

**Objectives:**

A. Students will be able to determine the parameters of a community and create a map that indicates its boundaries.

B. Students will be able to identify the animals that live within their communities by conducting a survey and recording their findings by indicating the locations of local fauna on the map.

C. Students will plan and create a project that depicts an example of local fauna in its habitat within the community.

D. To express the importance of biodiversity to ecosystems that may improve a locus of control that results in practicing conservation

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| Student Behaviors | Evidence | Criteria |
| To determine the parameters of a community  To identify the animals living within a community  To plan and create a project that depicts an example of local fauna  To express the importance of biodiversity to ecosystems that may improve a locus of control that results in practicing conservation | Student-created map to indicate community boundaries  Student Fauna Inventory sheet and placement of locations on community map  Completed project  Written reflections | Students demonstrate a Proficient, Partially Proficient or Needs Improvement level of mastery (Rubric)  Students complete a project that is assessed based on a rubric that encompasses the quality of the appearance, the content accuracy, and creativity (Rubric)  Self-evaluation |

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| ESTIMATED TIME | TEACHING TO THE OBJECTIVES | DIFFERENTIATION |
| 10 minutes | INTRO.: Begin with a review of terms that were previously connected with the study of ecosystems. (Refer to background information) Ask the questions: How is an ecosystem different from a habitat? What is an example of a type of community in an ecosystem? What types of populations live in your neighborhood? What is the niche of a snake? Elicit student responses. | Process: Students unsure of the answers may use notepaper to make lists or draw sketches to aid  with recall. |
|  | DEVELOPMENTAL ACTIVITIES |  |
| 90 minutes  60 minutes  90 minutes  30 minutes | Explain that students will be recording populations of animals that live in the area surrounding their residences. Take a census of the areas in which students live. What types of animals live nearby? Elicit student responses. The actual observations that students will make of species will be recorded online and marked on a map of their neighborhoods. Students will create an inventory of local fauna. This goal will be accomplished through the following activities:  Activity One: THE MAP   * Students are expected to come to class with a sketch that they have prepared to indicate the parameters of an area surrounding their residences. They should have estimated distances around the perimeter. Students will use the sketch to create a map drawn to scale using graph paper; or if technology is available, created using a GPS or “Google Earth.” * Teacher provides an example of his or her neighborhood or a neighborhood with which he or she is familiar. * Provide a handout for reference as students prepare maps. (Attachments) * Students are to label prominent landmarks and features of the area to include their home, other prominent buildings, open spaces, water, tree-covered areas and streets. * Students share maps with the whole class via the use of a Document Camera or by displaying them on a Bulletin Board entitled, “Do You Know Your Neighbors?”   ACTIVITY TWO: THE OBSERVATIONS   * Students will assume the roles of backyard naturalists and visit the outdoors in their areas to record samples of populations they observe living there. Students should be encouraged to include birds, mammals, reptiles, insects and fish (if they live near water). * To help students identify species they observe, websites can be used that list their local fauna. (Refer to References) * Students will record their findings by completing the chart provided (Attachment) * Charts are checked and approved for posting on the websites” Use websites to confirm observations: <http://www.connecting-with-nature.net/attracting-birds-and-butterflies-in-philadelphia.html>   <http://www.helpinganimals.com/f-philaPoisonWildlife.asp>  <http://www.delawareriver.net/fishspecies.php>  <http://www.aaanimalcontrol.com/professional-trapper/wildlife/PA-Philadelphia-Wildlife.htm>   * Students post their findings on the website: <http://www.nwf.org/wildlifewatch/> \*A CONSENT FORM MAY BE APPROPRIATE FOR STUDENT PARTICIPATION * Share findings with the whole class or add findings to the bulletin board   ACTIVITY THREE: THE PROJECT   * Students will choose an animal that they especially appreciate in the repertoire of those populations living in their areas. * Students are to locate a colored picture of the animal to class that can be found on the Internet or in a field guide. * Students plan and create a project that depicts the selected local fauna. To emphasize cultural connections and to reinforce science concepts, students will select a project from the following: Bark Painting (Mexican origin), Soap Carvings (African origin) or Paper Birds that Fly (Japanese origin). Other suggestions can also include the following: Paper Cut Outs or Paper Making (Both of Chinese origin), Bottle Biology Model of Habitat or Plaster of Paris Animal tracks. ( Attachments) * Examples of projects are to be displayed as models for the students. * Students read and follow the step-by-step instructions for the project which they have selected. Projects should be completed in class to ensure that work was completed by the students. * Projects are displayed in a classroom or school area for viewing by other students, personnel or parents.   ACTIVITY FOUR: THE REFLECTION   * Students write reflections that express their sentiments about their observations. Questions to be addressed include: What evidence of biodiversity existed in your area? Why do you think biodiversity is important to ecosystems? Do you think it is important to practice conservation? What type of conservation effort appeals to you? * Journals are submitted with a self-evaluation of its content (Attachment) | Tutorials should be provided for students needing additional  guidelines to clarify the  instructions.  Students can be grouped with others who live in their areas to provide collaboration that will optimize the investigation experience.  Copies of pictures can be supplied for students who had difficulty  locating one.  Teacher can assist students who  need support in making a selection. Student strengths can be  considered to aid in the process.  Additional time can be provided for those who need it to successfully complete the project.  Provide diagrams or posters for  visual learners.  Length and complexity requirements  can be varied to accommodate all learning styles and ability levels |
|  | ASSESSMENTS:   * Proficient, Partially Proficient or Needs Improvement mastery for creating and labeling area map of the populations observed. (Completion of Fauna Inventory and Creation of Selected Area Map) * Evaluation of Art Project (Scored by Rubric) * Written reflection of observations (Self-Evaluation Questions) | Accommodations for IEP students |
| 10 minutes | CLOSURE: Record on whiteboard: Create a class list of all of the species located in the students’ surroundings. What populations are represented the most? What are represented the least?  Discuss reflections |  |

Follow-up:

1. Put the animals on the list in order from greatest to least for represented populations. Create a graph or other visual representation of the findings. Discuss what animals need to be conserved.

2. Provide a list of organizations in which students can become involved with conservation projects if they choose to do so.

Materials: (Refer to Attachments)

1. 81/2 X 11 inch paper, computer, downloaded *Google Earth* program
2. Fauna Inventory, computer
3. As per project:

BARK PAINTING: Bark, chalk, paints

SOAP CARVINGS: Bars of soap, plastic carving implements, toothpicks

PAPER BIRDS: Instructions, 81/2/ X 11 inch blue and red paper, scissors, glue, colored pencils

References/Resources: See Attached

Technology: Google Earth, Internet